Course Specification
Part A

BSc (Hons) Computing Science
HND Computing Science
HNC Computing Science

Course code

CU Group
CU Coventry (CUC)
CU Scarborough (CUS)
CU London (CUL)

Academic Year: 2019/2020

Please note: This specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

We regularly review our course content, to make it relevant and current for the benefit of our students. For these reasons, course modules may be updated.

More detailed information on the learning outcomes, content, and teaching, learning and assessment methods of each module can be found in the Module Information Directory (MID), student module guide(s) and the course handbook.

The accuracy of the information contained in this document is reviewed by the University and may be verified by the Quality Assurance Agency for Higher Education.
PART A Course Specification
HNC Computing Science

Digital technology is at the heart of society and business, resulting in a need for highly skilled computing professionals with a thorough understanding of the key technologies and underlying theory, practical skills to solve problems with software and a strong appreciation of relevant professional, legal, social and ethical issues. Modern computing professionals also need to be able to be good communicators, able to engage with technical and non-technical clients, and also need to be able to continue to develop as technological advances continue at pace throughout their careers.

The Computing Science programme presented in this programme specification was designed in conjunction with academics in Computer Science and Ethical Hacking from Coventry University along with professional computing experts.

All teaching is designed to be available either fully face-to-face or as a mix of face-to-face classes and online delivery (a blended delivery model) to enable students to construct a flexible programme of study, either full-time or part-time. A strong emphasis is placed on practical skills and employability skills, whilst retaining the academic rigour expected from a University degree programme.

Teaching is delivered in small classes using modern technology aided teaching techniques, supplemented by appropriate use of online learning platforms and technology. The teaching style is designed to provide a supportive environment to enable students of different academic abilities and backgrounds to develop a solid knowledge of computing technologies accompanied by a number of transverse skills, such as group working, problem solving and independent working.

The programme specified here comprise three separate awards: HNC Computing Science; HND Computing Science and BSc Computing Science.

The HNC in Computing Science has all modules in common with the HNC in the Cyber Security degree and covers core issues of contemporary computing, but with a Cyber Security emphasis. This common level 4 provides an underpinning of Networking, Operating Systems, Information Security and Problem Solving and Programming. This ensures that the core computer science fundamentals are given the focus they require.

After this, in levels 5 and 6, the Computing Science and Cyber Security courses diverge in order to allow specialisation, although some modules are still common. Programming and professional skills, covered in the modules "Algorithms and Data Structures" and "Communication and Collaboration" are covered in all contemporary Computer Science degrees, but are also essential in Cybersecurity. Our industrial contacts
have regularly discussed the need for development skills in cybersecurity professionals, who must be able to keep pace with the phenomenal rate at which threats are discovered and vulnerabilities exploited. They also tell us of the need for professional skills, chief of which are communication and collaborative skills. The industry requires people who are not just technically skilled, but able to work with a team in order to service large projects, and convey their findings to a range of audiences, from the managerial to technically focused.

At level 5, the courses have two more points of commonality: the "Internet of Things" (IoT), and "Contemporary Issues in Computing". Both of these modules are clearly appropriate for students graduating from the Computing Science course, because they cover the fastest growing new platform for computing and the near and mid-term future of the industry into which the students will find themselves. It is for the same reason that they feature in the Cybersecurity course. IoT represents a growing challenge for cybersecurity professionals because it makes the attack surface of personal systems or corporate cyberspace presences more complex and broad, offering attackers a growing number of opportunities for exploitation. By teaching both groups in the same modules, it will be possible to ensure that they both have the understanding required for their future careers. Computing Science students will require an understanding of the security measures they must be building into those systems when they are creating them, which is one of the reasons the overlap of cybersecurity into more general computer science degrees is encouraged by groups such as BCS and ISC^2.

In addition to the shared modules at level 5 Computing Science provides specialist knowledge of Computer Hardware and Human Computer Interaction and Web Development.

At level 6 both Computing Science and Cyber Security students study a range of Contemporary Issues in Computing and spend time focussing on the ubiquitous nature of modern devices via study of the Internet of Things. However Computing Science students will also engage in more advanced study of Big Data and complete a Computing Science Project.

The programmes specified here follow the principle of intensive single module study, high levels of contact time and the inclusion of opportunities to undertake professional qualifications in addition to an academic award. The teaching and learning activities are balanced with attention paid to both the academic and practical aspects of the subject matter.

They are designed to provide a combination of underlying theory, practical application and professional and employability skills. They have been developed to meet the accreditation requirements of the British Computer Society, the UK’s professional body and the chartered institute for computing professionals. Students of the programme will be enrolled as student members of the British Computer Society to ensure engagement with the professional body from an early stage and to assist with their preparation for employment within the profession.
<table>
<thead>
<tr>
<th>Title of Award</th>
<th>Mode of attendance</th>
<th>UCAS Code</th>
<th>FHEQ Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc (Hons) Computing Science</td>
<td>Full Time programme with sandwich (SW) year – 4 Years</td>
<td></td>
<td>Level 6</td>
</tr>
<tr>
<td></td>
<td>Full Time programme with year abroad (FY) year – 4 Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Full Time programme 3 Years</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Part Time programme 4 Years</td>
<td></td>
<td></td>
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<tr>
<td>HND Computing Science</td>
<td>Full Time programme 2 Years</td>
<td></td>
<td>Level 5</td>
</tr>
<tr>
<td></td>
<td>Part Time programme 3 Years</td>
<td></td>
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<td>HNC Computing Science</td>
<td>Full Time programme 1 Year</td>
<td></td>
<td>Level 4</td>
</tr>
<tr>
<td></td>
<td>Part Time programme 2 Years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12 Outline and Educational Aims of the Course

As a programme that adheres to the QAA benchmark for Computing (February 2016) it incorporates the following key characteristics:

- The concept and elements of computational thinking and their relevance to daily life
- Deep understanding of computing systems and their operation and the process of developing or analysing them.
- Practical activity that is supported by understanding of underlying principles and theory.

Specifically, the Computing Science programme aims to:

- Provide detailed knowledge and understanding of modern computing technology, its operation and its application.
• Develop the skills and abilities necessary to design and develop high quality computing solutions to business and industry problems.

• Ensure graduates can operate as credible and high integrity professionals in the contemporary computing industry, able to adapt to new challenges as they emerge.

• Provide a detailed understanding of the challenges and opportunities of working with large scale data sets and information systems.

• Equip graduates with the research, critical thinking and academic skills necessary to undertake research and progress to postgraduate study.

13 Course Learning Outcomes

A student who successfully completes the course will have achieved the following learning outcomes:

1. [Theory and technology] Understand the underlying theory, technology, operation and security concerns of modern computing systems to practice within the computing and information technology domain.

2. [Development] Design, develop and evaluate systems, meeting the needs of a set of requirements and utilising relevant computing technology, problem solving techniques, design methods, programming languages and supporting tools.

3. [Systems and interaction] Develop and demonstrate an in-depth knowledge of contemporary computing and web systems and their human interfaces.

4. [Big data] Recognise the technical, commercial and application issues related to large scale data storage and manipulation.

5. [Legal, social, ethical and professional context] Exercise initiative, personal responsibility and integrity in decision making as a computing professional taking account of legal, social, ethical and professional issues and manage and sustain your own professional development.

6. [Researching and critical thinking] Research new and emerging technologies, techniques, business and societal issues, analysing and thinking critically and manage your own learning.

7. [Personal and transferable] Communicate effectively in written and spoken English using a variety of media, work individually and in teams and develop and sustain positive, productive and professional relationships with others.
14 Course Structure and Requirements, Levels, Modules, Credits and Awards

The HNC/HND/BA (Hons) Degree can be undertaken in various modes and patterns of delivery. Full Time (FT) mode is designed for students who wish to study 120 credits (4 modules) in one academic year, which can also be done online. Part Time (PT) mode is anything less than this. The awards are offered in a range of delivery options. Students can normally attend in the week or on two evenings or all day on a Saturday. Teaching sessions are presented in various ways including team teaching, group discussions, individual presentations, laboratories, interactive teaching and guest lecturers. The aim of each session is to have a balance between students learning academic, practical and professional skills.

The course is taught in 6-week blocks and can be offered (subjects to numbers) 6 times each calendar year.

- 4 blocks will lead to a HNC (120 credits at level 4)
- 8 blocks will lead to an HND (240 credits at levels 4 and 5)
- 12 blocks will lead to an Honours degree (360 credits at levels 4, 5 and 6)

Each one of the learning blocks (modules) is worth 30 credits; these will require the equivalent of 300 study hours. The modules run over a six week period and are taught consecutively, with assessments at the end of each block. See website for detail.

Full Time Students can also attend via the ‘Sandwich (SW) or Year Abroad (FY)’ option being taken for one year between the second and third years of study. Only the course mandatory modules will be counted towards the classification calculation. The placement or year abroad optional modules do not count towards the award and are not calculated in the classification.

The programme has three level of awards available to students:

- BSc (Hons) Computing Science
- HND Computing Science
- HNC Computing Science

For an HNC award a student must have passed or been credited with all the Mandatory modules at level 4 (120 credits).
For an HND award a student must have passed or been credited with all the Mandatory modules at levels 4 and 5 (240 credits).
For a BSc (Hons) award a student must have passed or been credited with all Mandatory modules at levels 4, 5 and 6 (360 credits).

Cascade of Awards:

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BSc (Hons) Computing Science
     ↓
HND Computing Science
       ↓
HNC Computing Science
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Modules within the course, their status (whether mandatory or options), the levels at which they are studied, and their credit value are identified in the table below.

<table>
<thead>
<tr>
<th>Credit level</th>
<th>Module Code Suffix will be ITSC/ITEL/ITPL</th>
<th>Title</th>
<th>Credit Value</th>
<th>Mandatory/Optional</th>
<th>Course Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>400IT</td>
<td>Networking</td>
<td>30</td>
<td>M</td>
<td>1,2,4,6,7</td>
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<tr>
<td>4</td>
<td>401IT</td>
<td>Operating Systems</td>
<td>30</td>
<td>M</td>
<td>1,3,5,6,7</td>
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<tr>
<td>4</td>
<td>402IT</td>
<td>Information Security</td>
<td>30</td>
<td>M</td>
<td>1,3,4,5,7</td>
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<tr>
<td>4</td>
<td>403IT</td>
<td>Problem Solving and Programming</td>
<td>30</td>
<td>M</td>
<td>1,2,5,7</td>
</tr>
<tr>
<td>5</td>
<td>504IT</td>
<td>Computer Hardware</td>
<td>30</td>
<td>M</td>
<td>1,2,3,6</td>
</tr>
<tr>
<td>5</td>
<td>505IT</td>
<td>Human Computer Interaction and Web Development</td>
<td>30</td>
<td>M</td>
<td>1,2,3,5</td>
</tr>
<tr>
<td>5</td>
<td>502IT</td>
<td>Algorithms and Data Structures</td>
<td>30</td>
<td>M</td>
<td>1,2,6,7</td>
</tr>
<tr>
<td>5</td>
<td>503IT</td>
<td>Communication and Collaboration</td>
<td>30</td>
<td>M</td>
<td>5,6,7</td>
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<tr>
<td>6</td>
<td>604IT</td>
<td>Big Data</td>
<td>30</td>
<td>M</td>
<td>1,2,3,4,5,6,7</td>
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<tr>
<td>6</td>
<td>605IT</td>
<td>Individual Computing Science Project</td>
<td>30</td>
<td>M</td>
<td>1,2,3,5,6,7</td>
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<tr>
<td>6</td>
<td>602IT</td>
<td>Internet of Things</td>
<td>30</td>
<td>M</td>
<td>1,2,3,5,6,7</td>
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<tr>
<td>6</td>
<td>603IT</td>
<td>Contemporary Issues in Computing</td>
<td>30</td>
<td>M</td>
<td>1,4,5,6,7</td>
</tr>
</tbody>
</table>

15 Criteria for Admission and Selection Procedure

UCAS entry profiles may be found by searching for the relevant course on the UCAS website, then clicking on 'Entry profile'.

The minimum entry requirements to these programmes are that candidates should normally possess one of the following:

- A minimum of 64 UCAS tariff points, including one full A level or equivalent for a HNC
- A minimum of 80 UCAS tariff points, including one full A level or equivalent for a HND
- A minimum of 104 UCAS tariff points, including one full A level or equivalent for a BSc (Hons) Degree
- BTEC National Certificate or Diploma in a relevant subject
- Appropriate Foundation/Access qualification where the standard achieved is deemed equivalent to the above

Candidates will be expected to have passed Maths and English GCSE with minimum grade 4, and hold a minimum of 5 GCSE’s in total (level 2 alternatives such as functional skills are accepted).

The general requirements for admissions are in line with CU Group policy (Academic Regulations: Regulations for the Admission of Students Chapter 2.3), and are also available on the individual course websites.
Students whose first language is not English must demonstrate proficiency in the English language equivalent to IELTS 6.0.

CU Group will also review applicants with non-standard entry requirements including those with professional work experience and direct entry applicants. Accredited prior learning and accredited prior experiential learning (AP(E)L) may be taken into consideration and mapped onto the entry criteria for the course. AP(E)L is in accordance with CU Group Academic Regulations (see Academic Regulations: Regulations for the Admission of Students Chapter 2.2).

**16 Academic Regulations and Regulations of Assessment**

This Course conforms to the standard CU Group Academic Regulations Mode F.

**17 Indicators of Quality Enhancement**

The course is managed by the Engineering and IT Board of Study of the CU Group. The Joint Assessment Board (JAB) for CU Group is responsible for considering the progress of all students and making awards in accordance with both the CU Group and course-specific regulations. The assurance of the quality of modules is the responsibility of the Boards of Study which contribute modules to the course.

External Examiners have the opportunity to moderate all assessment tasks and a sample of assessed work for each module. They will report annually on the course and/or constituent modules and their views are considered as part of the Course Quality Enhancement Monitoring (CQEM). Details of the CQEM process can be found on the Registry’s web site.

Students are represented on the Student Forum, Board of Study and Faculty/School Board, all of which normally meet two or three times per year.

Student views are also sought through module and course evaluation questionnaires.

The QAA’s review of higher education undertaken in February 2015 confirmed that Coventry University meets UK expectations in:

- the setting and maintenance of the academic standards of its awards;
- the quality of student learning opportunities;
- the quality of the information about learning opportunities;
- the enhancement of student learning opportunities.

In addition:

- teaching and learning strategy which utilises case studies as a key approach, synthesises theory and practice and provides opportunities for reflection;
- assessment which is aligned to teaching strategy and provides formative assessment opportunities;
- 92% overall satisfaction rate in NSS;
- 85% progression to further study or employment.
- Accreditation of the programmes will be sought from the British Computer Society at the earliest possible opportunity.
18 Additional Information

Enrolled students have access to additional, key sources of information about the course and student support including:

- Student handbook
- Moodle
- Module information directory
- Study support information
- Wellbeing/pastoral support
- On-campus librarian

Students also have access to:

- An extensive online learning environment
- An on-campus library
- Extensive online sources including online books and journals
- Areas on campus for private and group study outside of formal classes
- Access to laboratories for practical work